

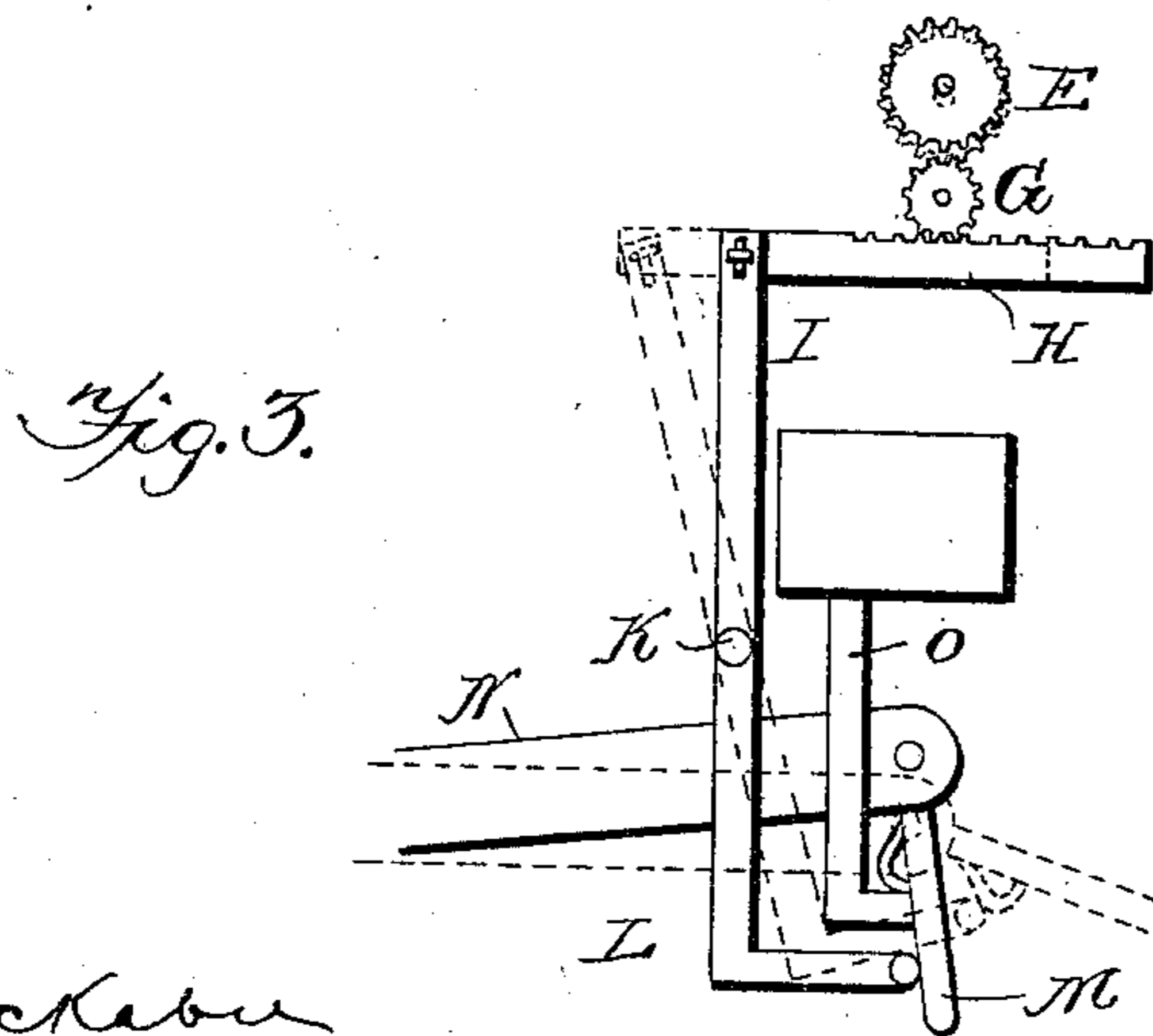
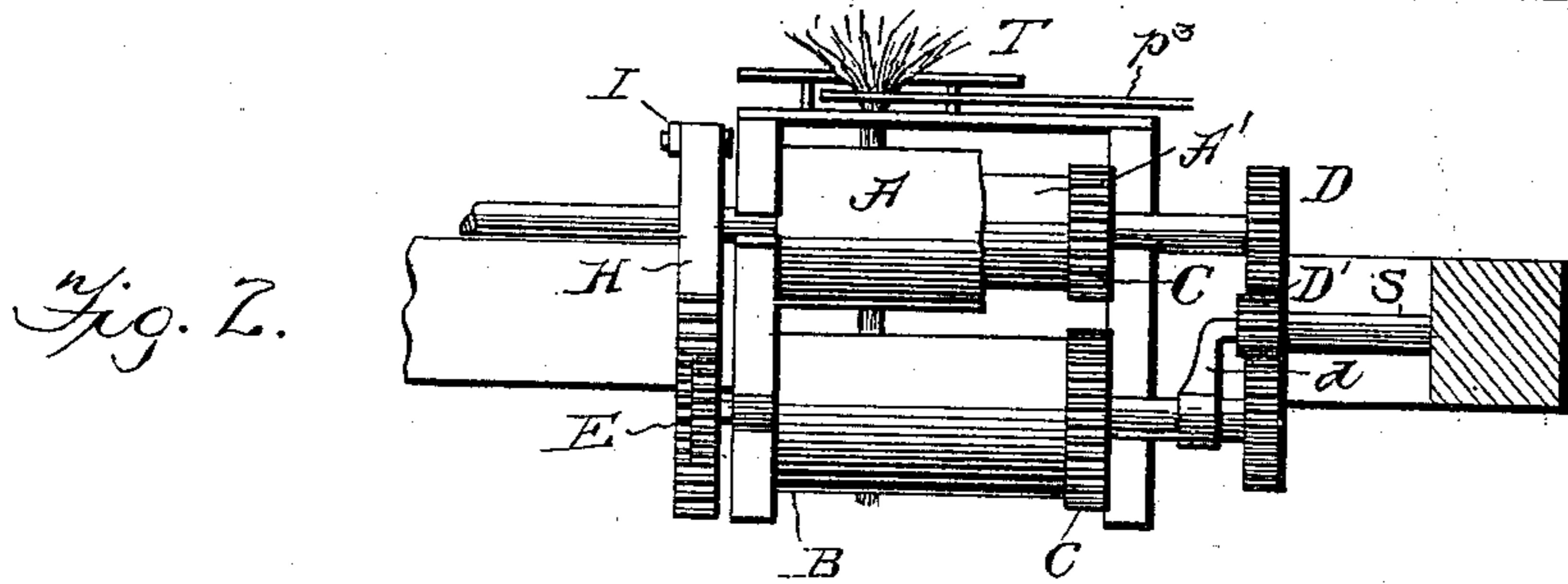
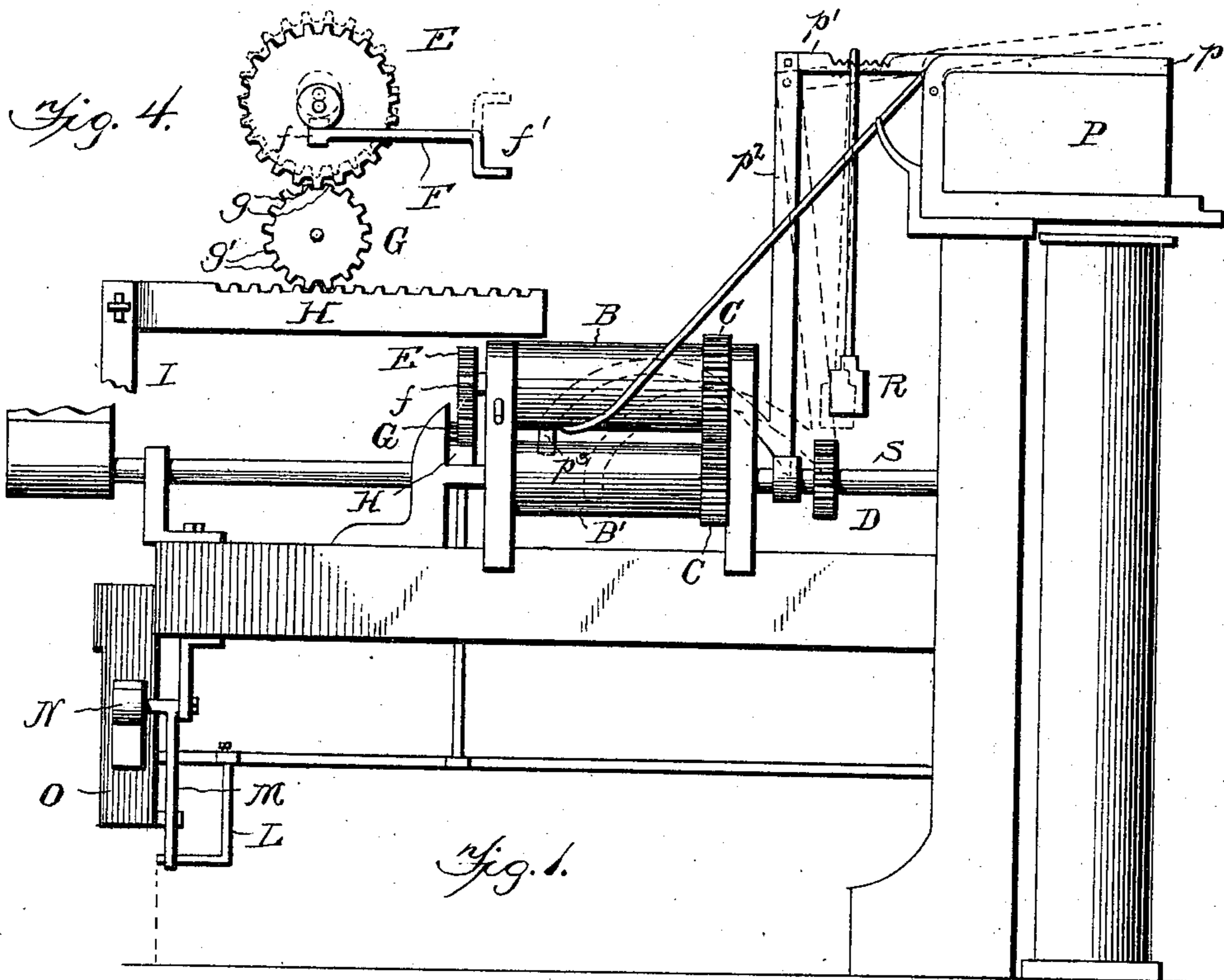
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Patented Sept. 18, 1900.

J. BRADY, JR. & N. CHOUINARD.
STOP MOTION FOR CARDING MACHINES.

(No Model.)

(Application filed Jan. 19, 1900.)



Witnesses
T. L. Mockaber
Grace P. Breerton.

Inventors
John Brady, Jr.
Napoleon Chouinard.
By *John A. Sullivan*
Attorney

UNITED STATES PATENT OFFICE.

JOHN BRADY, JR., AND NAPOLEON CHOUINARD, OF FALL RIVER,
MASSACHUSETTS.

STOP-MOTION FOR CARDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 658,137, dated September 18, 1900.

Application filed January 19, 1900. Serial No. 2,016. (No model.)

To all whom it may concern:

Be it known that we, JOHN BRADY, Jr., and NAPOLEON CHOUINARD, citizens of the United States, residing at Fall River, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Stop-Motions for Carding-Machines; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Our invention relates to carding-machines; and its object is to provide a positive and efficient stop-motion operative when the cotton breaks or when the sliver-can is full or the coiler becomes clogged.

In the drawings, Figure 1 is an elevation of a set of calendering-rolls embodying our improvements. Fig. 2 is a plan view of a portion thereof. Fig. 3 is an elevation of a part of the stop-motion, and Fig. 4 is a detail showing the gears on an enlarged scale.

We use two pairs of calendering-rolls A A' and B B', the upper and lower rolls of each pair being geared together by the gear-wheels C, as usual, and the lower gears being geared together by gears D and an intermediate pinion D', carried on an arm d, sleeved on the shaft of one of said lower gears. The rolls are thus obliged to rotate in unison. The shafts of the upper rolls are vertically movable in their bearings, as usual. The shaft of the upper roll farthest from the doffer—that is, the roll B—is provided with a gear-wheel E, and underlying said shaft is a rock-arm f on a rock-shaft F, extending out to a convenient point and provided with a second rock arm or handle f'. By means of this rock-shaft the upper roll B can be raised and lowered. Fig. 4 shows the parts as they stand when the upper roll is in its lowered position. By giving the rock-shaft a half-turn the rock-arms assume the dotted-line position, the arm f lifting the shaft of the roll B and carrying the roll up away from the lower roll.

Adjacent to the gear-wheel E and journaled on a stationary stud is a pinion G, having two of its teeth g shorter than the others g',

as clearly shown in Fig. 4. This pinion is in constant mesh with a rack H, one end of which is pivoted to an arm I on a rock-shaft K, extending across the machine and having an arm L, whose extremity lies adjacent to the knock-off handle M, hinged to the bar N, which when dropped throws the doffer out of gear. The handle M is normally supported on a hanger O, depending from the frame of the machine. In operation the short teeth on the pinion allow the gear-wheel E to rotate freely so long as the cotton is passing between the calender-rolls; but in case the cotton breaks or runs too thin the roll B drops far enough to let the teeth of the gear-wheel E engage with the short teeth g of the pinion G, whereby said pinion is started, its continued rotation by the gear-wheel E causing the rack to move, actuating the rock-shaft K and tripping the knock-off handle M and so stopping the machine. The small rock-shaft F is used to raise the roll B when the cotton is again fed in between the rolls. The coiler P is of the usual construction and forms no part of our invention.

In order to stop the machine when the sliver-can is full, we attach to the hinged plate p of the coiler an arm p', having an extension p², provided with a hooked end p³, lying adjacent to the cotton where it enters between the first pair of rolls A A'. A weight R is hung on the arm p' and may be adjusted thereon to vary the time at which the device will act.

The coiler is driven by the shaft S, geared to the calender-rolls. When the machine is running, the tension of the cotton passing through the coiler-plate holds said plate down in the position shown in full lines in Fig. 1, with the hook p³ standing at one side of the cotton where it enters the trumpet. If the cotton breaks between the calender-rolls and the coiler, the tension is relaxed, permitting the weighted arm p' to fall, thereby tilting up the plate p and causing the hook p³ to be drawn across and break the cotton where it enters the rolls, and thus allowing the upper rolls to drop and operate the stop-motion, as above described. The position of the parts is shown by the dotted lines. This same operation takes place if the coiler becomes

clogged or the sliver-can gets overfull, since in either case the accumulation of cotton under the plate *p* lifts it up, and thereby operates the hook *p*³. To avoid the ill effects which occur by reason of climatic changes when an iron trumpet is used to guide the cotton into the rolls, we make our trumpet T of brass.

By using two pairs of calender-rolls and applying the stop-motion to the pair farthest from the doffer the prompt operation of the stop-motion is insured, since it sometimes happens that the cotton will bunch up in front of the first pair after breaking and prevent the upper roll from dropping.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. A stop-motion for carding-machines, consisting of a vertically-movable calender-roll under which the cotton passes, a gear-wheel on the shaft of said roll, a pinion lying adjacent to said gear-wheel and having a portion of its teeth shorter than the others, and connections between said pinion and the gear-shifting mechanism of the doffer.

2. A stop-motion for carding-machines, consisting of a vertically-movable roll under which the cotton passes, a gear-wheel on the shaft of said roll, a pinion lying near said gear-wheel and having those teeth normally adjacent to said wheel shorter than the others, a rack in mesh with said pinion, a rock-shaft connected with said rack, and means for causing the rock-shaft to actuate the gear-shifting mechanism of the doffer.

3. The combination with the upper calendering-roll of a carding-machine, of a gear-wheel on the shaft of said roll, a pinion lying adjacent to said gear and having two or more of its teeth normally adjacent to the gear-wheel shorter than the others, a rack in mesh with said pinion, a rock-shaft having an arm pivoted to said rack, a gear-shifting mechanism,

and an arm on the rock-shaft adapted to trip said mechanism.

4. In a carding-machine, the combination with a vertically-movable upper calendering-roll, of stop-motion mechanism adapted to be set in operation by said roll when lowered, and a rock-shaft adjacent to said roll for raising it when the machine is to be started.

5. In a carding-machine, the combination with an upper roll B, of a rock-shaft F having an arm *f* lying under the shaft of said roll, and a handle *f*' for actuating said rock-shaft.

6. The combination with the calender-rolls of a carding-machine, of a stop-motion therefor, a coiler mechanism, comprising a plate over which the sliver from the rolls passes, a hook adjacent to the cotton as it enters the roll, and connections between said hook and the coiler-plate, whereby when the coiler-plate departs from its normal position the hook will break the cotton, and thereby cause the stop-motion to operate.

7. The combination with the calender-rolls of a carding-machine, of a stop-motion therefor, a coiler mechanism comprising a hinged plate over which the sliver passes, an arm on said plate carrying a hook lying adjacent to the cotton as it enters the rolls, and means for tilting said plate when the sliver breaks or the can overflows or the coiler clogs.

8. The combination with the calender-rolls of a carding-machine, of a stop-motion therefor, a coiler mechanism comprising a hinged plate *p* having an arm *p*', carrying a hook *p*³, and a weight R on said arm.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN BRADY, JR.
NAPOLEON CHOUINARD.

Witnesses:

GEORGE M. HOOD,
ARBA N. LINCOLN.